

REMARKS

In the pending office action, claims 13-21 are pending. Applicants thank Examiner Ramana for indicating the allowability of the subject matter of claims 15, 17 and 18. The Examiner has rejected claims 13-14, 16, and 19-21 on new grounds, which are respectfully traversed as discussed below.

Turning first to the rejection under Section 112, it is respectfully submitted that the phrase “first-mentioned screws” is sufficiently definite to be understood by one of ordinary skill in the art, and that therefore no changes to claim 20 are necessary. Nevertheless, to move this application toward allowance amendments have been made to enable replacement of the phrase “first-mentioned screws” with language that also sufficiently identifies the parts referred to. No narrowing of claims 13, 20 or 21 has occurred, and as noted above, this amendment is not necessary to obtain allowance of any claim.

Examiner Ramana has rejected claim 13 as anticipated by the Zucherman reference. Respectfully, Zucherman does not show all aspects of claim 13, and therefore this rejection should be withdrawn. The Examiner relies on Figure 1 of the Zucherman reference in her rejection, and yet that Figure does not show or suggest a “foot portion of a plate partially into the anterior portion of intervertebral space” as recited in claim 13. The embodiment of Figures 1-3 of Zucherman does not show any part in an intervertebral space. Neither of the “plate” parts (54 or 56) are even partially in the space between L5 and S1, and the plate does not extend below S1, as seen in Figure 2. In fact, the reference specifically indicates graft material to occupy the L5/S1 space, and so teaches away from modifying its disclosure to place a part of its plate within that space. All of the “keel” parts (60 and 62) are anchored in the represented bones. If the keel parts were placed partially in bone, and partially in an intervertebral space, an open slot in the

vertebra would be formed, with the keel part in the slot. The vertebra would be prone to fracture or other injury because bone would not surround the slot, and because stresses on the Zucherman plate would cause the keel to pivot against the open end of the slot. Thus, not only are the keel parts not shown in an intervertebral space, they would not be placed in such a space as a matter of mechanics and sound medicine.

Further, the Zucherman reference does not show installing screws from the front of a foot portion of a plate downwardly through such foot portion and out a bottom of such foot portion into S1, as claim 13 recites. Zucherman does not show a “foot” on its plate as the claim recites. As discussed above, there is no part of the Zucherman reference that extends into an intervertebral space, and thus there is no part of that reference than can be the “foot” recited in the claim.

Turning now to claims 14, 16 and 19-21, which stand rejected over the combination of the Zucherman and Freid references, it is respectfully maintained that these claims are also allowable. As demonstrated above, Zucherman does not show all elements of claim 13, and therefore the combination of Zucherman and Freid does not include all elements of claims 14, 16 and 19-21. Moreover, the Zucherman reference cannot be modified with bone screws on convergent paths as the Examiner suggests. That is because the main feature of the Zucherman reference, keels 60 and 62, are positioned between the holes in the Zucherman plate for its screws 70, 72, 78 and 80. As most clearly seen from Figure 1 of Zucherman, placing its screws 70, 78 on convergent paths would cause interference between screws 70, 78 and keel 60. The modified Zucherman plate would not work because such convergent screws cannot be inserted due to keel 60. Similarly, placing the screws 72, 80 on convergent paths would prevent those screws from being completely inserted due to interference with the keel 62. Since the

Zucherman reference cannot be modified as the office action suggests without removing its principal feature, the combination of Zucherman and Freid against claim 14 is not appropriate.

Claim 16 is allowable based on its dependence from claims 13 and 14, and also because the Zucherman reference does not show pulling L5 and S1 toward each other and compressing fusion material in said intervertebral space. While the Zucherman reference discloses use of bone graft in the L5-S1 space, it does not disclose pulling the vertebrae together and compressing fusion material. Zucherman discloses creating slots in vertebrae in which keels on a solid plate are inserted. As a matter of mechanics, it is not seen how such pulling or compression can occur with the Zucherman plate. With the keels inserted into bone, pulling the bones together is impossible because the Zucherman plate will not compress, and the bones cannot slide along the plate due to their connection with the keels. Without a statement that its graft is compressed, and since the Zucherman reference's disclosure makes pulling the vertebrae together impossible, it is submitted that claim 16 is independently allowable over any possible combination of Zucherman and Freid.

As to claims 19-21, they are dependent from claim 16, and are thus allowable at least for the same reasons noted above with respect to claims 13 and 16. Respectfully, the Examiner has also not provided sufficient basis to combine the Freid and Zucherman references against claims 19-21. As noted above, Zucherman teaches away from including screws on convergent paths, because they would interfere with Zucherman's keel feature. As understood from the Freid reference, the basis for its ring mechanisms and associated structure is to provide for angulation of screws relative to a plate. These structures enable Freid to have its convergent screws. Since there is no basis for altering Zucherman with Freid's convergent screws, there is also no basis for altering Zucherman with structure that enables screws to be convergent. Freid also does not

show an anti-backout screw engaging bone screws, and in any case such an anti-backout screw positioned near a bone screw head would also interfere with a Zucherman keel. For these and perhaps other reasons, claims 19-21 are independently allowable.. Claim 20 is not obvious over Zucherman and Freid because Freid does not show anti-backout screws, and because anti-backout screws as recited in claim 20 cannot be used in the Zucherman reference. As already discussed, the keel members of Zucherman are the principal features of that reference, and they are placed between the holes in the Zucherman plate for screws. A hole for an anti-backout screw to contact the heads of the Zucherman screws would interfere with, or be made impossible by, the positioning of the Zucherman keel. Claim 21 is allowable at least for substantially the same reasons.

Consequently, each of the pending claims are allowable over the references of record, and the Examiner is respectfully requested to withdraw the pending rejections of them. Applicant reserves the right to seek to antedate at least the cited Freid reference by declaration under Rule 131.

New claims 25-38 are being offered in this paper. Claim 25 includes subject matter in claim 13 and claim 15, and is allowable on the bases noted above for claims 13 and 15. Claims 26-31 are dependent from claim 25. Claims 32-38 are dependent from allowable claims 15 and 17. No new matter has been added.

As already noted, the amendments to the claims are not believed necessary to their patentability, and are not believed to narrow their scope. Accordingly, these claims are entitled to the full scope of their language, including the full scope available under the doctrine of equivalents.

In summary, the Examiner is respectfully requested to reconsider the pending claims in light of the above remarks, and to issue a Notice of Allowance for them. The undersigned attorney would welcome a telephone call from the Examiner if it is determined that further information or action is needed to place this application in better form for allowance.

Respectfully submitted,

By: 

Christopher A. Brown, Reg. No. 41,642
Woodard, Emhardt, Moriarty,
McNett & Henry LLP
Bank One Center/Tower
111 Monument Circle, Suite 3700
Indianapolis, Indiana 46204-5137
(317) 634-3456